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AN ECOLOGICAL CHECKLIST OF THE PLANTS OF KIBOKO NATIONAL RANGE RESEARCH STATION, KENYA

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ABSTRACT

The flora of the Kiboko National Range Research Station was systematically sampled and collections made in each major ecological site. Belt transects were laid through the sites to serve as reference points for the collection of species during all seasons of the year.

Representative specimens were collected and identified. The relative abundance, habit and longevity of each species was recorded in the field and this has been compiled to form a checklist.

The most widespread families on the research station in order of prominence were Gramineae (*Eragrostis*, *Digitaria*, *Chloris*, *Brachiaria*, *Setaria*), Leguminosae (*Acacia*), Compositae, Burseraceae (*Commiphora*), Combretaceae (*Combretum*), Capparaceae, Euphorbiaceae, and Acanthaceae.

INTRODUCTION

Knowledge of the flora is fundamental to understanding the ecology of any region. In East Africa, several isolated studies on the plants have been conducted with various objectives. Dale & Greenway (1961), presented a pertinent account of the woody plant species in Kenya, while Lind & Morrison (1974) showed the extent to which the physiognomy of bushland is dependent upon the species comprising the woody vegetation component and the presence or absence of perennial grasses. More recently Coe & Collins (1986) gave an ecological inventory of the Kora National Reserve containing an annotated checklist of plants of the area, while Blundell (1982, 1987) dwelt on selected wild flowers of Kenya and East Africa.

Since about 80% of Kenya is rangeland, there is a need to have a well documented account of the rangeland plants therein, as they are important resources for development. Range management, for instance depends primarily on a knowledge of the plants, their ecophysiology, forage value, poisonous properties, distribution and associated habitat. A floristic study of the potentially productive and unproductive range areas of the country with the objective of documenting the occurrence of forage species as well as poisonous species is necessary. Such an undertaking would benefit from an ecological checklist of the species in ecoclimatic zones four and five, as delineated by Pratt, *et al.* (1966). It was the purpose of this study to contribute to this data base for the Kiboko Range Research Station whose research objective in range management is to increase and sustain livestock production. The results will benefit both basic and applied research in range management in these zones.

DESCRIPTION OF THE STUDY AREA

The study was conducted near Kiboko on the Kenya Government National Range Research Station which is located approximately 160 km from Nairobi, on the Nairobi/Mombasa road (Fig. 1). The station land area is approximately 30,000 h (74,000 acres). The station altitude is approximately 1000 m (3,280 ft) above sea level, and lies between latitude 2° 10' S and 2° 25' S, and longitudes 37° 40' E and 37° 55' E.

Climate

The climate of Kiboko falls under the influence of the Intertropical Convergence Zone (Whyte, 1968), characterised by a bimodal distribution of wet and dry seasons. The months of January and February characterise the short dry season, followed by a long rainy season from March to May. June to October is usually the harsh, long dry season which is followed by a rather short wet season from November to December. It is important to mention the rather off-season rains that tend to fall

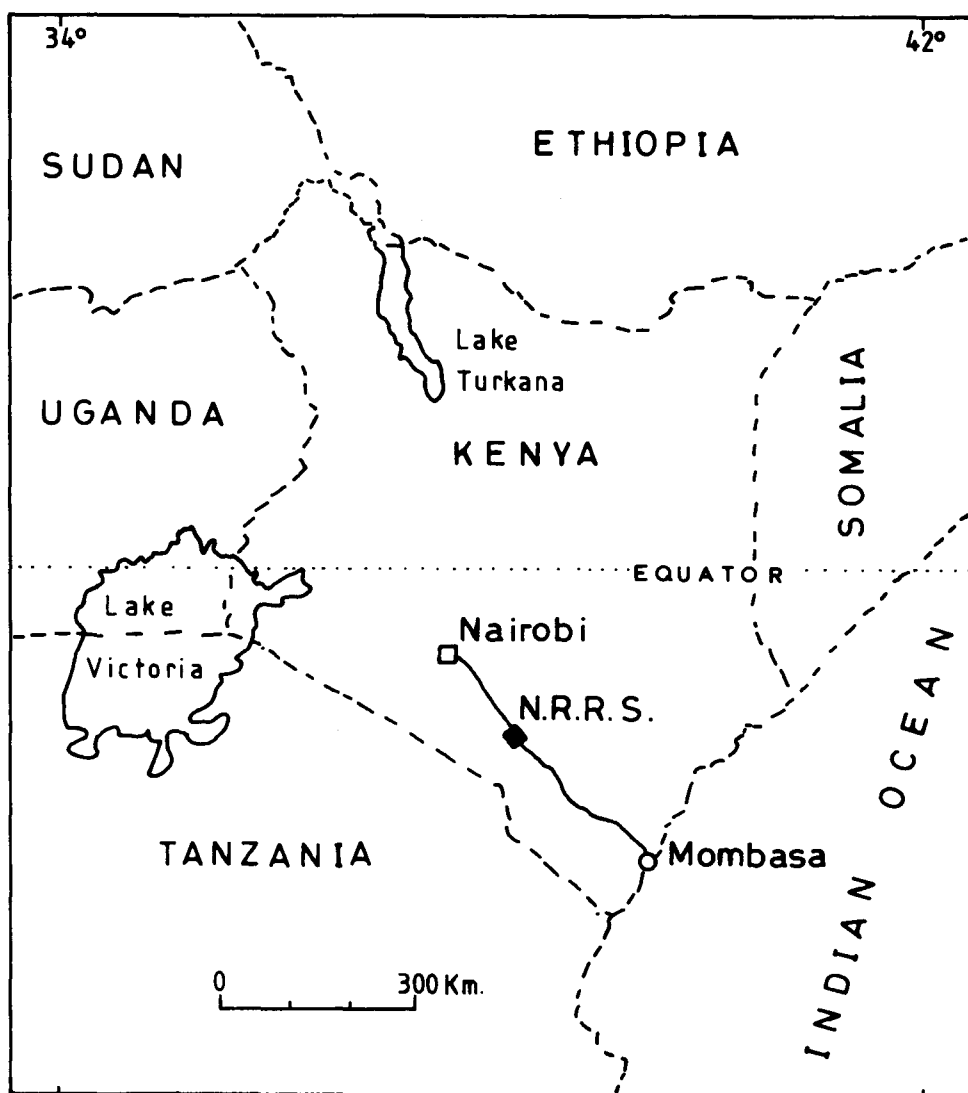


Figure 1: Map of Kenya showing the location of Kiboko Range Research Station (N.R.R.S.).

a few weeks before the expected rainy periods. These trigger early flowering and leaf formation in some woody species, as well as seed germination for the early emerging ephemerals (C. G. Gakahu, personal communication).

Rainfall data for the study area over the past 43 years conform to the long-term annual average of around 600 mm (Michieka & von der Poun, 1977). Most of these data accrue from the well-established Makindu Meteorological Station.

The mean maximum annual temperature for the Makindu Meteorological Station is 28.6°C and the mean minimum temperature is 16.5°C. The long-term annual average temperature is around 23°C. The long-term annual average evaporation is 2000 mm, the mean dew point is around 15.7°C and mean relative humidity is 62.5% (Michieka and von der Poun, 1977).

Geological summary

A large portion of this area is classified as the Basement System gneisses, and approximately one-third is covered by young lava flows of recent deposition (Michieka and von der Poun, 1977). The latter are still in the process of degradation and the soil tends to be shallow and undeveloped, rather rocky and very permeable.

Michieka & von der Poun (1977), defined three major regions which can be identified in the study area with regard to the general geomorphology:

- (i) the area underlain by Basement System rocks of the semi-calcareous group,
- (ii) the area underlain by Basement System rocks of the middle, semi-pelitic group,
- (iii) the area consisting of recent lava flows, associated volcanic vents, cones and recent limestones.

Soils of the study area

The soils of the Kiboko Research Station may be broadly categorized on the basis of the geomorphological and geological history of the area, where influence of the landscape and geology are clearly indicated as follows (Michieka & von der Poun, 1977):

(1) *Soils of hills and footslopes*

These are on the volcanic cones of Mwailu, Duani, Dojini and Wikiamba among others (Fig. 2). These soils are predominantly shallow, well drained, black to very dark greyish brown, friable and include soils developed over pyroclastic materials. These soils may also be moderately to strongly calcareous. They are generally referred to as regosols.

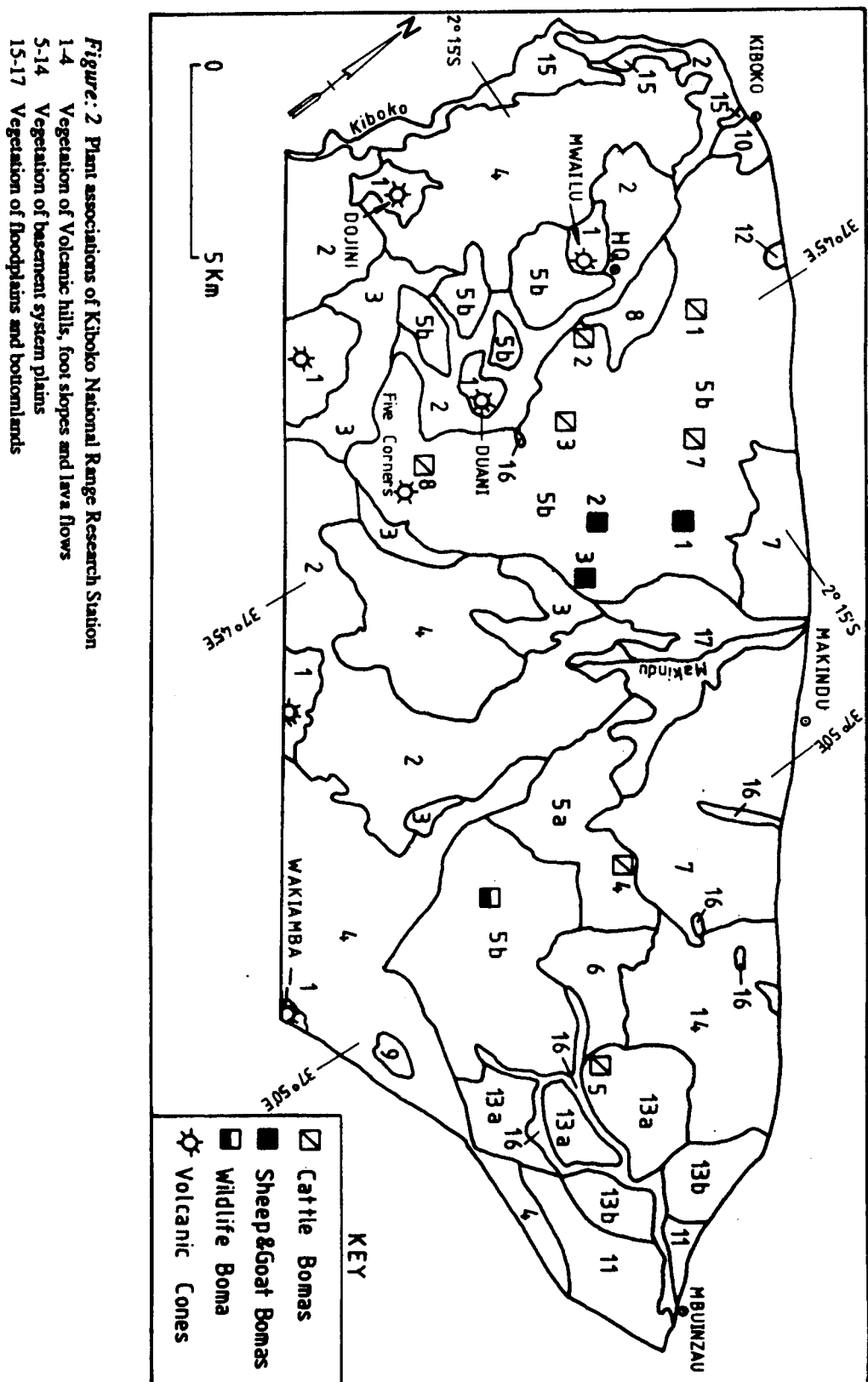
(2) *Soils of lava flows*

These include both lithosols and rock-outcrops. They tend to be well drained, very shallow, black to very dark greyish brown, stony to very rocky. Some areas also have silty clay derived from "pumice" deposits, with extremes of rocky, irregular mesorelief of many sink holes, piles of olivine basalt rocks and collapsed tunnels.

(3) *Soils of floodplains and bottomlands*

These soils generally developed on olivine basalt and include the chromic vertisols that are imperfectly drained, very deep, dark grey, firm, cracking, and moderately calcareous silty clay to clay. These form the floodplain along the Kiboko river basin, which is the northern border of the station, in Association 15 (Fig.2).

Those soils in this category that have developed on recent alluvial deposits include calcic Chernozem, which tend to be moderately well drained, deep, dark brown to greyish brown and strongly calcareous clay. These are found in the area bordering the private land along the Makindu river course, which is in Association 17 (Fig. 2). The imperfectly drained calcic cambisol tend to be very deep, dark grey, firm and extremely calcareous clay with pockets of soft lime. These are the soils near Makindu township (Fig. 2).



The vertisols in this category are imperfectly drained, deep dark grey to black, firm cracking strongly and calcareous. These tend to occur in various pockets in the southern ranch, and also have various narrow arms stretching over this part of the study area down to Mbuinzau (Fig. 2), supporting a characteristic vegetation of *Acacia drepanolobium* Sjostedt and *Pennisetum mezianum* Leeke also *Echinochloa haploclada* (Stapf) Stapf.

Other types of soils in this category include those vertic and calcaric fluvisol types that tend to be imperfectly drained, very deep, strongly to moderately calcareous, firm sandy clay to silty clay sometimes cracking. These occur along the course of the Kiboko river.

(4) *Soils of basement system plains*

These soils cover the largest portion of the Research station. They form the bulk of the grazing blocks on both the northern and southern ranches. Within this rather broad classification occur those soils developed on relatively undifferentiated basement system rocks; predominantly banded gneisses. The ferrosol type, well drained, deep, with colours ranging from dark reddish brown to dark brown and yellowish red, friable to firm clay and sandy clay, come under this category.

Around Shoats* boma 1 stretching down to the south east near Shoats boma 3, occurs a luvisol with characteristic red to dark reddish brown firm sandy clay to clay with topsoil of loamy sand. Bordering this soil type is a stretch of nitosol characterized by well-drained deep dark red friable sandy clay to clay which stretches to the Mombasa road, and along the bottomland soils of the Makindu river course. The soils are said to have developed on basement system rocks rich in ferromagnesian minerals (Michieka & von der Poun, 1977).

The Five-Corners area (Fig. 2) has a type of luvisol which also covers the flat expansive area to the south of Mwailu hill and patches are found to the west and southwest of Duani volcanic cone. These tend to be well-drained, deep reddish brown to dark red. They support predominantly *Acacia tortilis* (Forssk.) Hayne and *Digitaria macroblephara* (Hack.) Stapf, the dominant grass of the understory.

(5) *Soils under swamps*

These constitute a very small portion of the station, they support predominantly *Pennisetum massaicum* stapf as well as other grass species around the edges of the water.

Plant associations

The vegetation of the study area was divided into three broad categories by Michieka & von der Poun (1977), encompassing 13 plant associations as delineated by Langat, *et al.* (1975). These had to be further sub-divided into the now recognized 17 plant associations (Fig. 2), due to evidence of further vegetation changes, mostly arising from overgrazing and accidental fires. These factors have tended to change the rate of succession by affecting species composition, as compared to conditions in 1973-1974 when the last vegetation mapping of the study area was completed by Langat, *et al.* (1975).

The categories have been assigned according to physiographic features and each plant association has been designated with a number as follows:

A. THE VEGETATION OF VOLCANIC HILLS, FOOTSLOPES AND LAVA FLOWS

The hills (volcanic cinder cones) include Mwailu, Duani, Dojini, Wikiamba (Fig. 2).

Association No. 1: *Chrysopogon plumosus* - *Sehima nervosum* association on the hills and lower slopes. The association is relatively open grassland not greatly invaded by shrubs.

Association No. 2: *Sehima nervosum*-*Digitaria macroblephara* - *Grewia bicolor* association

* sheep & goats

on lava flows. This type of lava flow shows some weathering of the rocks, which tend to be small and scattered, enabling some soil formation to take place.

Association No. 3: *Acacia brevispica* - *Commiphora baluensis* association is on shallow, highly permeable volcanic depositions. This type of vegetation occurs on very rocky rough terrain with large volcanic boulders. The trees and shrubs tend to be well-rooted between the rocks. Grass cover, if any, is very low, usually less than 10%.

Association No. 4: Bushland thicket, which is relatively undifferentiated into specific associations. This tends to be a rather complex bushland which is composed of various shrub species that are well-rooted in the rock crevices. Dominants are *Acacia brevispica*, Harms various species of *Maerua*, and *Asparagus falcatus* L. The terrain has little or no grass cover due to a lack of soil that would support the grass root system.

B. THE VEGETATION OF BASEMENT SYSTEM PLAINS

This type of vegetation covers broader categories of associations and is the most widespread and diverse on the Kiboko Station. It covers over half of the grazing blocks in the northern ranch and also over half of the total area of southern ranch. The dominant associations are as follows:

Association No. 5a: *Digitaria macroblephara* - *Acacia tortilis* - *Dousperma kilimandscharicum* - *Commiphora africana* - *Commiphora mildbraedii*. This type of association is predominant around cattle boma 4 on the southern ranch as well as the region between the Makindu river and the wildlife unit. This tends to be densely bushed grassland where burning would reduce the shrub species and upgrade the grazing value of these blocks.

Association No. 5b: *Digitaria macroblephara* - *Acacia senegal* - *Grewia bicolor* - *Acacia tortilis* - *Acacia mellifera* - *Commiphora africana*. In this type of vegetation, *D. macroblephara* and *Bothriochloa insculpta* (A.Rich.) A. Camus are the dominant grasses, whereas the overstory species include *C. africana* (A.Rich.) Engl., *A. senegal* (L) and *A. tortilis*. The remaining are understory species. This association forms the bulk of grazing blocks both in the northern and southern ranches. There has been a change in dominance in the northern ranch close to Shoats boma 1 where *D. macroblephara* has been replaced by *Eragrostis caespitosa* Chiov. on the more closely grazed areas extending eastward toward the Makindu river.

Association No. 6: *Sehima nervosum* - *Commiphora mildbraedii* - *Acacia tortilis*. This association intergrades with No. 5a, but *S. nervosum* (Rottler) Stapf has taken over the understory dominance leaving *Digitaria milaniana* (Rendle) Stapf in small patches. The higher canopy also includes some *A. senegal*. This association is evident in the grazing block between cattle boma 4 and boma 5 in the southern ranch. In the latter, close grazing tends to cause *Eragrostis caespitosa* to replace *D. milaniana* and *Themeda triandra* Forssk. which were dominants on the vegetation map of 1975 Langat, et al (1975).

Association No. 7: *Chloris roxburghiana* - *Acacia senegal* - *Commiphora mildbraedii*. In this association *C. roxburghiana* Schult. dominates the understory whereas, the overstory is shared by the woody species. This association occurs to the east of the road from boma 7, on the northern ranch, extending towards and near the Mombasa road; and on both sides of the road to boma 4 from the Mombasa road on the southern ranch, where it tends to be more wooded with taller *C. mildbraedii* Engl.

Association No. 8: *Cymbopogon pospischilii* - *Digitaria macroblephara* - *Commiphora mildbraedii*. This forms sparsely bushed grassland over part of the northern ranch near the location of cattle boma 3. This is the only area where *C. pospischilii* (K. Schum.) C.E. Hubbard occurs in substantial amounts. The association extends towards the lava flow in its western portion where *Sehima nervosum* association forms a very abrupt ecotone.

Association No. 9: This is a rather isolated island of *Cynodon dactylon* - *Eragrostis superba* - *Adansonia digitata* - *Acacia tortilis*. This vegetation island is about 60 h, and surrounded by lava thicket on all sides, and has a deep red clay to sandy clay soil. The herbaceous species include various legumes, notably *Indigofera malindiensis* Gillett and *Crotalaria polysperma* Kotschy.

Association No. 10: Bushland dominated by *Cenchrus ciliaris* L. in the understory layer, *Acacia mellifera* (Vahl) Benth. at the shrub layer and *A. tortilis* in the overstory. It is located in the northern ranch, near Kiboko. A large portion of this area has been disturbed by clearing for a new nursery site, and *Cynodon dactylon* has tended to take over. The undisturbed areas still retain *Cenchrus ciliaris* in the understory.

Association No. 11: An association of *Aristida kenyaensis* - *Cynodon dactylon* - *Commiphora africana* - *Combretum apiculatum* forms part of the bushland next to Mbuinzau Market. *C. dactylon* (L.) Pers. occurs in patches and overgrazing has tended to favour *A. kenyaensis*, an annual grass that sheds seeds quickly after maturity leaving the area bare for the dry season. Bushland in these areas is relatively thick and in some cases impenetrable. Grass cover has greatly diminished here.

Association No. 12: On the northern ranch an almost pure grassland association of *Sporobolus fimbriatus* Nees. - *Cenchrus ciliaris* surrounds the seasonal salt lake which forms next to the Mombasa road (between Kiboko and Makindu). *Acacia tortilis* occurs in patches close to the edges of the pond, where grass cover is very high. *Pennisetum massaicum* Stapf is also a prominent species. *Cynodon dactylon* tends to occur as one moves further away from the pond, where as *Chloris roxburghiana* forms part of the ecotone with other associations.

Association No. 13a: A larger portion of the southern ranch is covered with *Themeda triandra*, and *Chloris roxburghiana*, *Combretum apiculatum* Sond. *T. triandra* and *C. roxburghiana* dominate the understory and *C. apiculatum* dominates the overstory. Illegal grazing on the area close to the Mombasa road has been severe and the species composition has changed to become predominantly annuals, and *A. mellifera* with other shrubs of low grazing value. *A. kenyaensis* tends to be the main grass cover, but only during the wet season.

Association No. 13b: *Aristida kenyaensis* is the understory dominant with a complex array of shrubs. *Commiphora mildbraedii* is present in this association due to uncontrolled grazing. *T. triandra* and *C. roxburghiana* have been grazed out and replaced by *A. kenyaensis* and various other annual weed species, most of which sprout at the onset of the rains and persist only during the wet periods of the year. This association tends to be confined closer to the area near Mbuinzani.

Association No. 14: A complex bushland dominated by *Chloris roxburghiana* and *Digitaria macroblephara* in the understory and *Acacia tortilis* and *Grewia similis*, in the shrub layer. *Commiphora africana* and *A. senegal* dominate the overstory. This association covers a larger portion of the southern ranch and is relatively inaccessible. It has some of the longest transects laid through it and part of the bushland thicket is relatively undifferentiated.

C. VEGETATION OF FLOODPLAINS and BOTTOMLANDS

Association No. 15: This is classified as bottomland silty clay site which occurs along the course of the Kiboko river near Kiboko. *Pennisetum mezianum* dominates the vegetation with occasional annuals especially during the rainy season.

Association No. 16: This vegetation type appears in isolated pockets in both the northern and southern ranches where black-cotton soil supports predominantly *Echinochloa haploclada*. Waterlogging is common during the rainy season due to poor drainage of this soil. *Acacia drepanolobium* is frequent especially where the soil is shallow.

Association No. 17: This association occurs only along the Makindu river where *Acacia xanthophloea* Benth., and *Phoenix reclinata* Jacq. are the dominants. *Cyperus alternifolius* L. is common on the rather swampy habitat in this association.

METHODS

Plant associations in the field were sampled systematically, such that choice of the location and number of transects depended upon the amount of variation evident on a given site. Each plant association sampled had at least two transects across it, whereas the maximum number of transects through a single plant association with great diversity was eight. The length of each transect depended on the relative distance from the centre of each association to the edges. The shortest transect of all was about 80 m long whereas some transects were up to 3.5 km in length.

A total of 110 transects were laid in the 17 plant associations, throughout the study area. About 50 transects were spread over the southern ranch while the rest were in the northern ranch. The Five-Corners area (Fig. 2), where grazing management studies are being conducted, had various transects that were employed but not considered as part of the total number of transects. Compass bearings were used to mark the orientation of each transect. White painted wooden stakes (made of cedar to prevent destruction by termites) were placed along the length of each transect marking its alignment. In addition to the stakes, red ribbons (flags) were tied on trees that occurred along the course of each transect for easy orientation of the direction of the transect.

A wooden stake was placed at the center point of each plant association. Plants occurring along each transect were collected starting from the centre point to the end of the transect. A note was made regarding the longevity (annual or perennial), growth habit (herb, shrub, tree, epiphyte, climber) and relative abundance (rare, common, abundant) of each species encountered. A species was regarded as *rare* if it occurred very infrequently along the transect, for instance if when walking along the transect a species was seen only once or twice, with little evidence of its prominence within the association. A *common* species was one that was encountered frequently along all the transects within the association. The category of *abundant* was accorded those species that were very prominent within the association. Frequently, those species regarded as *abundant* had contributed to the delineation of the vegetation into the different associations. The sites were revisited at two weekly intervals during the growing season to ensure the collection of any newly emergent species.

Voucher specimens were deposited in the S.M. Tracy Herbarium (TAES), Missouri Botanical Garden (MO), Nairobi University Herbarium (NAI) and the East African Herbarium (EA).

An ecological checklist was compiled in the following format. Families are listed in alphabetical order. Within each family the genera are arranged in alphabetical order as are species within each genus.

RESULTS

The vegetation that develops on the Basement System plains generally is characterized by presence of species of *Acacia*, *Commiphora*, *Combretum* and grasses. The grasses may include species of *Eragrostis*, *Digitaria*, *Chloris*, *Themeda* and *Panicum*. These genera may succumb to disturbance and *Aristida* may become prominent with a host of other annuals as a result.

Pratt & Gywnne (1977) point out that *Combretum* is a dominant tree genus of ecoclimatic zones III and IV. Its prominence over a large portion of the southern ranch of the station in association with *Panicum maximum* Vacq. indicates a region of slightly higher rainfall than the rest of the station. This part of the station has been regarded as falling in ecoclimatic zone IV.

The location of the research station offers unique combinations of vegetation types. The lava flows, covering about 30% of the station land area, have pockets of soil that support such species as *Hyparrhenia hirta* (L.) Stapf, *Pennisetum setaceum* (Forssk.) Chiov. and *P. stramineum* Peter, which are expected in higher rainfall areas in ecoclimatic zone III. *Commelina africana* L. var. *boehmiana* (K. Schum.) Brennan, which was found in association with *Cenchrus ciliaris*, *Acacia mellifera* and *A. tortilis* (Association 10), is a new record from this part of Kenya as indicated by records at the East African Herbarium, Nairobi.

A summary of the number of species within each family on the station (Table 1) showed *Gramineae* with the highest number (90 species) followed by *Leguminosae* (47 species) *Euphorbiaceae* and *Compositae* with 20 species each, and the other families represented by fewer species. 27 families were represented by one genus and one species only on the station.

The shrub component of the vegetation represented 18.7% of the total number of species (Table 2) whereas the non-grass herbs constituted 35.4%. The number of tree species was 12.2%, which was half that of the grasses. Only one epiphytic species was recorded on the research station *Plicosepalus sagittifolius* (Sprague) Danser. These results indicate a high species diversity reflected on a small area, as shown also by Ndiang'ui (1984), which is characteristic of the vegetation in the tropics under this type of climate.

Table 1. Summary of the number of genera and species within each family found on the Kiboko National Range Research Station.

Family	No. of genera	No. of species	% of Total species
Acanthaceae	11	14	3.7
Aizoaceae	2	2	0.5
Amaranthaceae	6	8	2.1
Anacardiaceae	3	5	1.3
Araceae	1	1	0.3
Asclepiadaceae	4	4	1.1
Balanitaceae	1	1	0.3
Bignoniaceae	1	1	0.3
Boraginaceae	3	5	1.3
Burseraceae	1	4	1.0
Campanulaceae	2	2	0.5
Capparaceae	5	9	2.4
Caricaceae	1	1	0.3
Celastraceae	1	2	0.5
Chenopodiaceae	1	1	0.3
Combretaceae	2	5	1.3
Commelinaceae	2	4	1.0
Compositae	15	20	5.3
Convolvulaceae	2	6	1.6
Crassulaceae	1	1	0.3
Cruciferae	1	1	0.3
Cucurbitaceae	4	6	1.6
Cyperaceae	3	11	2.9
Ebenaceae	1	1	0.3
Euphorbiaceae	12	20	5.3
Geraniaceae	1	1	0.3
Gramineae	49	90	24.0
Icacinaceae	1	1	0.3
Labiatae	5	9	2.4
Leguminosae	22	47	12.5
Liliaceae	6	9	2.4
Lobeliaceae	1	1	0.3
Loranthaceae	1	1	0.3
Malpighiaceae	1	1	0.3
Malvaceae	4	12	3.2
Meliaceae	2	3	0.8

Family	No. of genera	No. of species	% of Total species
Menispermaceae	1	1	0.3
Moraceae	1	1	0.3
Nyctaginaceae	1	2	0.5
Ochnaceae	1	1	0.3
Olacaceae	1	1	0.3
Palmae	1	1	0.3
Passifloraceae	1	1	0.3
Polygalaceae	1	1	0.3
Polygonaceae	1	1	0.3
Portulacaceae	1	1	0.3
Resedaceae	1	1	0.3
Rhamnaceae	1	2	0.5
Rubiaceae	4	4	1.0
Rutaceae	1	1	0.3
Salvadoraceae	2	2	0.5
Sapindaceae	2	3	0.8
Scrophulariaceae	1	1	0.3
Solanaceae	3	6	1.6
Sterculiaceae	4	6	1.6
Tiliaceae	3	8	2.1
Turneraceae	1	1	0.3
Umbelliferae	1	1	0.3
Verbenaceae	7	11	2.9
Vitaceae	2	6	1.6
Zygophyllaceae	1	1	0.3
TOTAL	223	375	100.0

Table 2. Summary of the growth habits of species found on the Kiboko National Range Research Station.

Growth habit	No. of species	% of Total species
Grasses	90	24.1
Trees	46	12.2
Shrubs	70	18.7
Non-grass herbs	133	35.4
Climbers	35	9.3
Epiphytes	1	0.3

THE CHECKLIST

ACANTHACEAE

<i>Anisotes ukambensis</i> Lindau	S	RARE	3* 4
<i>Asystasia charmian</i> S. Moore	AH	COMMON	1
<i>Barleria eranthemoides</i> C.B.Cl.	AH	RARE	10 11 13 16 17
<i>B. grandicalyx</i> Lindau	AH	RARE	1 2 5b
<i>B. micrantha</i> C.B.Cl.	AH	COMMON	3 13 14
<i>Blépharis linariifolia</i> Pers.	AH	RARE	2 5a 9
<i>B. maderaspatensis</i> (L.) Roth	AH	RARE	5a 9
<i>Crossandra mucronata</i> Lindau	PH	RARE	13b
<i>Dousperma kilimandscharicum</i> (Lindau) Dayton	S	ABUNDANT	5a 11 13
		RARE	6 7 17
<i>Isoglossa laxa</i> Oliv.	PH	RARE	15
<i>Justicia flava</i> Vahl	AH	RARE	5a 14b 15
<i>J. matammensis</i> Oliv.	AH	RARE	16
<i>Monechma debile</i> (Forssk.) Nees	AH	RARE	2 8 9
<i>Ruttya fruticosa</i> Lindau	S	RARE	4
<i>Thunbergia erecta</i> (Benth.) Hook.	A/PH	COMMON	13
		RARE	2

AIZOACEAE

<i>Corbichonia decumbens</i> (Forssk.) Exell	A/PH	RARE	2
<i>Mollugo nudicaulis</i> Lam.	AH	RARE	2

AMARANTHACEAE

<i>Aerva lanata</i> (L.) Schultes	PH	COMMON	1 2 9 12 14 15
<i>Achyranthes aspera</i> L.	A/PH	ABUNDANT	8 15 17
		RARE	3 12
<i>Alternanthera pungens</i> Kunth	AH	ABUNDANT	2
<i>Amaranthus caudatus</i> L.	AH	RARE	2
<i>A. spinosus</i> L.	AH	RARE	2 15
<i>Digera muricata</i> (L.) Mart.	AH	RARE	2 15
<i>Pupalia grandiflora</i> Peter	AH	RARE	3 14
<i>P. lappacea</i> (L.) Juss.	AH	COMMON	5 8 14
		RARE	3 9 13b 15

ANACARDIACEAE

<i>Lannea rivae</i> (Chiov.) Saci.	T	COMMON	5 11 14
		RARE	2 3 6 7 8 13b
<i>L. schweinfurthii</i> (Engl.) Engl.	T	RARE	1 2 3 6 8 9 10
<i>Sclerocarya birrea</i> (A.Rich.) Hochst.	T	RARE	8 9
<i>S. birrea</i> (A.Rich.) Hochst. ssp. <i>caffra</i> (Sond.) Kokwaro	T	RARE	2
<i>Ozoroa insignis</i> Del. ssp. <i>reticulata</i> (Bak. f.) Gillett	T	RARE	2 5 14

* Numbers 3,4,1, etc. denote associations in which the plants were found (See Fig. 2).

AH = Annual herb

S = Shrub

PC = Perennial climber

AC = Annual climber

T = Tree PH = Perennial herb

A/P - Annual or Perennial

ARACEAE

<i>Stylochiton puberulus</i> N.E. Br.	AH	COMMON	14
		RARE	5 13

ASCLEPIADACEAE

<i>Calotropis procera</i> (Ait.) Ait.f.	S	RARE	5b 9 12
<i>Diplostigma canescens</i> K.Schum.	AH	RARE	2
<i>Gomphocarpus kaessneri</i> N. E. Br.	AH	RARE	2 17
<i>Pentarrhinum insipidum</i> E. Mey	PC	RARE	5b 13b

BALANITACEAE

<i>Balanites aegyptiaca</i> (L.) Del.	T	COMMON	5b 8
		RARE	12 13b 15 16 17

BIGNONIACEAE

<i>Spathodea campanulata</i> P. Beauv.	T	RARE	2 (ornamental)
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BORAGINACEAE

<i>Cordia sinensis</i> Lam.	T	RARE	4 8 15
<i>C. ovalis</i> R. Br.	S	RARE	5b 7 8 10 12 16
<i>Heliotropium steudneri</i> Vatke	AH	RARE	5b 10 15
<i>H. subulatum</i> (DC.) Martelli	AH	COMMON	5b 8 14
		RARE	5 7 11 16 17
<i>Trichodesma zeylanicum</i> (L.) R. Br.	AH	RARE	9

BURSERACEAE

<i>Commiphora africana</i> (A.Rich.) Engl.	T	ABUNDANT	5 6 7 8 11 14
		COMMON	13
<i>C. baluensis</i> Engl.	T	COMMON	4 14
		RARE	7 10 11
<i>C. boiviniana</i> Engl.	T	COMMON	4 5 14
<i>C. mildbraedii</i> Engl.	T	ABUNDANT	5a 6 7 8 11 14 13

CAMPANULACEAE

<i>Wahlenbergia abyssinica</i> (A.Rich). Thulin	AH	RARE	2
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CAPPARACEAE

<i>Cadaba farinosa</i> Forssk.	S	COMMON	4
<i>Capparis tomentosa</i> Lam.	S	RARE	4 15
<i>Cleome hirta</i> (Klotzsch) Oliv.	AH	COMMON	2 5 8 10 15
<i>C. monophylla</i> L.	AH	COMMON	2 5 8 13
		RARE	3
<i>Gynandropsis gynandra</i> (L.) Briq.	AH	RARE	2
<i>Maerua angolensis</i> DC.	T	RARE	4
<i>M. decumbens</i> (Brongn.) De Wolf	S	COMMON	4
		RARE	9
<i>M. kirkii</i> (Oliv.) F. White	S	COMMON	4
		RARE	9
<i>M. triphylla</i> A.Rich.	S	COMMON	4
		RARE	9 14

CARICACEAE			
<i>Carica papaya</i> L.	T	COMMON	2 (cultivated)
CELASTRACEAE			
<i>Maytenus heterophylla</i> (Eckl. & Zeyh.)			
N. Robson	S	RARE	14
<i>M. senegalensis</i> (Lam.) Exell	S	RARE	17
CHENOPODIACEAE			
<i>Chenopodium album</i> L.	AH	RARE	2 15
COMBRETACEAE			
<i>Combretum aculeatum</i> Vent.	S	COMMON	10
		RARE	5b 8
<i>C. apiculatum</i> Sond.	T	ABUNDANT	11 13a
		RARE	1 2
<i>C. molle</i> G. Don.	T	COMMON	11 13a
<i>Terminalia parvula</i> Pampan	T	RARE	5a 9 11 14
<i>T. kilimandscharica</i> Engl.	T	RARE	5a 13a 14
COMMELINACEAE			
<i>Aneilema johnstonii</i> K. Schum.	AH	RARE	5a 10
<i>Commelina africana</i> L. var.			
<i>boehmiana</i> (K.Schum.) Brenan	AH	RARE	10
<i>C. albescens</i> Hassk.	AH	RARE	5a 6 10 11 13a
<i>C. benghalensis</i> L.	AH	RARE	5b 9 10 13a 14
COMPOSITAE			
<i>Acanthospermum hispidum</i> DC.	AH	RARE	2 5b 6 10 11 13b 16
<i>Aspilia mossambicensis</i> (Oliv.) Wild	PH	COMMON	3
		RARE	4 9 1 14 15 16
<i>A. pluriseta</i> Schweinf.	PH	COMMON	3 15 17
		RARE	4 14
<i>Athroisma psyllioides</i> (Oliv.) Mattf.	AH	RARE	8
<i>Bidens pilosa</i> L.	AH	RARE	2 5b
<i>B. schimperi</i> Sch. Bip.	AH	ABUNDANT	15
<i>Blepharispermum pubescens</i> S. Moore	S	RARE	9 14
<i>Conyza aegyptiaca</i> (L.) Ait.	AH	RARE	2 5a
<i>Galinsoga parviflora</i> Cav.	AH	RARE	2
<i>Gynura miniata</i> Welw.	PH	RARE	13b
<i>Launaea cornuta</i> (Oliv. & Hiern) C. Jeffrey	AH	COMMON	2 5b 8 9
<i>Schkuhria pinnata</i> (Lam.) O. Ktze.	AH	COMMON	15
		RARE	2
<i>Sonchus asper</i> (L.) Hill	AH	RARE	2 9
<i>Sphaeranthus cyathuloides</i> O. Hoffm.	AH	COMMON	12 16
		RARE	2
<i>Tagetes minuta</i> L.	AH	RARE	2
<i>Tridax procumbens</i> L.	AH	COMMON	2
<i>Vernonia</i> sp. C of U.K.W.F. (Agnew)	AH	RARE	8
<i>V. galamensis</i> (Cass.) Less.			
ssp. <i>petitiana</i> (A.Rich.) M.G. Gilbert	AH	RARE	2 5b
<i>V. pteropoda</i> Oliv. & Hiern	S	ABUNDANT	17
<i>V. wakefieldii</i> O. Hoffm.	AH	RARE	3 5b 6 7 8 9 11 16

CONVOLVULACEAE

<i>Astripomoea hyoscyamoides</i> (Vatke) Verdc.	AH	COMMON	5b
		RARE	1 2 3 9 10 12
<i>A. malvaceae</i> (Klotzsch) Meeuse var. <i>floccosa</i> (Vatke) Verdc.	PH	RARE	1 2
<i>Ipomoea eriocarpa</i> R. Br.	AC	RARE	2
<i>I. kituiensis</i> Vatke var. <i>kituiensis</i>	PC	RARE	5a 11 13a
<i>I. mombassana</i> Vatke	PC	ABUNDANT	9
<i>I. obscura</i> (L.) Ker-Gawl.	AC	RARE	2 13b

CRASSULACEAE

<i>Kalanchoe lanceolata</i> (Forssk.) Pers.	AH	RARE	2
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CRUCIFERAE

<i>Farsetia stenoptera</i> Hochst.	AH	RARE	2 15
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CUCURBITACEAE

<i>Cucumis dipsaceus</i> Spach	AC	RARE	2 5a 9 15
<i>C. hirsutus</i> Sond.	PC	RARE	9
<i>C. prophetarum</i> L. ssp. <i>dissectus</i> (Naud.) C. Jeffrey	PC	RARE	2
<i>Kedrostis gijef</i> (J.F. Gmel.) C. Jeffrey	PC	RARE	5a
<i>Lagenaria abyssinica</i> (Hook.f.) C. Jeffrey	AC	RARE	8
<i>Momordica boivinii</i> Baill.	PH	RARE	2

CYPERACEAE

<i>Cyperus alternifolius</i> L.	PH	ABUNDANT	15 17
<i>C. articulatus</i> L.	PH	ABUNDANT	15
<i>C. bulbosus</i> Vahl var. <i>melanolepis</i> Kuenth.	AH	RARE	
<i>C. giolii</i> Chiov.	AH	RARE	4 10
<i>C. laevigatus</i> L.	PH	ABUNDANT	15
<i>C. longibracteatus</i> Cherm.	PH	ABUNDANT	15
<i>C. obtusiflorus</i> Vahl	AH	RARE	1 2 3 7 8 9 14 15
<i>C. rotundus</i> L.	AH	RARE	1 2 3 7 10 15 16
<i>Fimbristylis dichotoma</i> (L.) Vahl.	PH	COMMON	15
<i>F. hispidula</i> (Vahl) Kunth	PH	ABUNDANT	15
<i>Mariscus obsoletinervosus</i> (Peter & Kuk.) Greenway	AH	RARE	5a

EBENACEAE

<i>Euclea racemosa</i> Murr. ssp. <i>schimperii</i> (A. DC.) F. White	T	RARE	17
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EUPHORBIACEAE

<i>Acalypha fruticosa</i> Forssk.	S	COMMON	14
		RARE	9 10 15
<i>A. indica</i> L.	AH	RARE	2
<i>Bridelia cathartica</i> Bertol.f.	S	RARE	15
<i>Croton dichogamus</i> Pax	S	RARE	3 14
		COMMON	5
<i>C. scheffleri</i> Pax	T	COMMON	4
<i>Dalechampia ipomoeifolia</i> Benth.	PC	COMMON	15
<i>Erythrochocca bongensis</i> Pax	S	RARE	15
<i>Euphorbia cotinifolia</i> Pax	S	RARE	15

<i>E. heterochroma</i> Pax	T	COMMON	4
<i>E. heterophylla</i> L.	AH	RARE	2
<i>E. inaequilatera</i> Sond.	AH	COMMON	2
<i>Flueggea virosa</i> (Willd.) Voigt	S	RARE	2 15
<i>Jatropha spicata</i> Pax	S	RARE	10
<i>Phyllanthus amarus</i> Schumach. & Thonn.	AH	RARE	8
<i>P. maderaspatensis</i> L.	PH	RARE	2
<i>Ricinus communis</i> L.	S	RARE	15
<i>Synadenium molle</i> Pax	S	RARE	3 4 5b
<i>Tragia hildebrandtii</i> Muell. Arg.	PH	RARE	12
<i>T. subsessilis</i> Pax	PC	RARE	2 12

GERANIACEAE

<i>Monsonia longipes</i> R. Kunth.	AH	COMMON	15 12 16
		RARE	2

GRAMINEAE

<i>Andropogon chinensis</i> (Nees) Merr.	P	COMMON	2
		RARE	5 6 11
<i>Aristida adscensionis</i> L.	P	ABUNDANT	2
		COMMON	11 13 8
		RARE	3 5 6 10 12
<i>A. barbicollis</i> Trin. & Rupr.	A	RARE	2
<i>A. kenyensis</i> Herr.	A	COMMON	2 1 13
		RARE	7 16
<i>A. mutabilis</i> Trin. & Rupr.	A	RARE	2
<i>Bothriochloa bladhii</i> (Retz.) S.T. Blake	P	COMMON	5
<i>B. insculpta</i> (A.Rich.) A. Camus	P	ABUNDANT	16
		COMMON	12
		RARE	2 8 9 10 15
<i>B. radicans</i> (Lehm.) A. Camus	P	COMMON	12 15 16
		RARE	5 6 7 9 11 13 16 17
<i>Brachiaria deflexa</i> (Schumach.) Robyns	A	COMMON	15
		RARE	2 5 9 13 17
<i>B. eruciformis</i> (J. E. Smith) Griseb.	A	COMMON	15
		RARE	2 5
<i>B. lachnantha</i> (Hochst.) Stapf	A	COMMON	12 16
		RARE	15
<i>B. leersioides</i> (Hochst.) Stapf	A	COMMON	2 5 (roadsides & fire breaks)
		RARE	6 7 10 15 16
<i>B. leucacrantha</i> (K.Schum.) Stapf	A	COMMON	8 (roadsides & fire breaks)
		RARE	2 3 5 6 7 8 9 11 15
<i>B. reptans</i> (L.) Gardner & Hubbard	A	RARE	2 9 15
<i>Cenchrus ciliaris</i> L.	P	ABUNDANT	3 (near Hunters Lodge)
		COMMON	10 15 17
		RARE	1 2 5 6 7 8 9 11 12 13 14 17
<i>Chloris gayana</i> Kunth.	P	RARE	2 17
<i>C. pycnothrix</i> Trin.	A	RARE	2 15 12
<i>C. roxburghiana</i> Schult.	P	ABUNDANT	5 7 8 9
		COMMON	13 14
		RARE	2 3 6 10 11 12
<i>C. virgata</i> Sw.	A	COMMON	1 2 3 4 5
		RARE	6 10 11 13 16
<i>Chrysopogon plumulosus</i> Hochst.	P	ABUNDANT	1 2
		RARE	5

<i>Cymbopogon caesius</i> (Hook. & Arn Stapf)	P	ABUNDANT	8
		RARE	5
<i>C. pospichilii</i> (K.Schum.) C.E. Hubbard	P	ABUNDANT	8
		COMMON	12
		RARE	5 16
<i>Cynodon dactylon</i> (L.) Pers.	P	ABUNDANT	1 9
		COMMON	5 10
		RARE	2 6 7 11 12 13 15 16 16
<i>C. plectostachyus</i> (K. Schum.) Pilg.	P	COMMON	3 (near Hunters Lodge) 10
		RARE	6 9
<i>Cypholepis yemenica</i> (Schweinf.) Chiov.	A	RARE	1 2 3 4
<i>Dactyloctenium aegyptium</i> (L.) Willd.	A	COMMON	2 3 (roadsides & fire breaks)
		RARE	5 6 7 8 10 11 13 14 17
<i>Dichanthium annulatum</i> (Forssk.) Stapf var. <i>papillosum</i> (A. Rich.) de Wet & Harlan	P	COMMON	12 15 16
<i>Digitaria abyssinica</i> (A. Rich.) Stapf	P	RARE	2
<i>D. gazensis</i> Rendle	P	RARE	5 6 14
<i>D. macroblephara</i> (Hack) Stapf	P	ABUNDANT	5 6 7 13 14
		COMMON	11 8
		RARE	2 16 17
<i>D. milaniana</i> (Rendle) Stapf	P	COMMON	6 11
		RARE	7 14
<i>D. velutina</i> (Forssk.) P. Beauv.	A	COMMON	2 3 15 (roadsides & fire breaks)
		RARE	5 6 7 9 10 13
<i>Diheteropogon amplexans</i> (Nees) W.D. Clayton	P	RARE	2
<i>Dinebra polycarpa</i> S.M. Phillips		COMMON	2 12 15
<i>D. retroflexa</i> (Vahl) Panzer	A	COMMON	15
<i>Echinochloa haploclada</i> (Stapf) Stapf	P	ABUNDANT	12 16
		COMMON	17
<i>Eleusine coracana</i> (L.) Gaertn.	A	RARE	2 (cultivated)
<i>E. indica</i> (L.) Gaertn.	A	RARE	2
<i>Enneapogon cenchroides</i> (Roem. & Schult.) C. E. Hubbard	A	COMMON	1 2 3
		RARE	12
<i>Enteropogon macrostachyus</i> (A. Rich.) Benth.	P	ABUNDANT	5b
		COMMON	5a 6 7 8
		RARE	3 10 11 13 14
<i>Eragrostiella bifaria</i> (Vahl) Bor	A	RARE	1 2
<i>Eragrostis aethiopica</i> Chiov.	A	RARE	2 5 10 12 16
<i>E. caespitosa</i> Chiov.	P	ABUNDANT	5a 14 10
		COMMON	5a 14 10
		RARE	6 7 8 11 16
<i>E. cilianensis</i> (All.) Lut.	A	COMMON	2 3 4
		RARE	5 7 10 11 13 17
<i>E. cylindriflora</i> Hochst.	A	RARE	2
<i>E. rigidior</i> Pilg.	P	RARE	2
<i>E. superba</i> Peyr.	P	ABUNDANT	9
		COMMON	5 7 8 11 13 14
		RARE	2 3 6 10
<i>Eriochloa fatmensis</i> (Hochst. & Steud.) W.D. Clayton	A	COMMON	12 15 16
<i>Eustachys paspaloides</i> (Vahl) Lanza & Mattei	P	RARE	1 2 5a 6 11 13b
<i>Harpachne schimperii</i> A. Rich.	A	RARE	2

<i>Heteropogon contortus</i> (L.) Rhoem. & Schult.	P	COMMON	(alongside Mombasa road)
		RARE	2 5 6 8 11 17
<i>Hyparrhenia hirta</i> (L.) Stapf	P	RARE	2
<i>Ischaemum afrum</i> (J.F. Gmel.) Dandy	P	COMMON	16 (North Ranch Five-Corners)
		RARE	6
<i>Leptocarydion vulpiastrum</i> (De Not.) Stapf	A	COMMON	2 3 4 17
<i>Leptochloa obtusiflora</i> Hochst.	P	RARE	2 3 4 9 10 15 17
<i>Leptothrium senegalense</i> (Kunth)	A	COMMON	5b
W.D. Clayton		RARE	6 7 8 10 11
<i>Lintonia nutans</i> Stapf	P	RARE	15
<i>Microchloa kunthii</i> Desv.	P	RARE	2
<i>Oropetium thomaemum</i> (L.f.) Trin.	A	COMMON	4
		RARE	2 5 8 10 11 15
<i>Panicum atosanguineum</i> A. Rich.	A	RARE	5 12 16 17
<i>P. coloratum</i> L.	P	RARE	8
<i>P. deustum</i> Thunb.	P	COMMON	9
		RARE	5 6 10 11 13 14 15
<i>P. maximum</i> Jacq.	P	COMMON	5 7 9 14
		RARE	6 8 10 11 13
<i>Paspalidium desertorum</i> (A. Rich) Stapf	A	RARE	2
<i>Pennisetum massaicum</i> Stapf	P	ABUNDANT	12 15 16
		COMMON	5
		RARE	2 17
<i>P. mezianum</i> Leeke	P	ABUNDANT	12 15 16
		RARE	3 8
<i>P. setaceum</i> (Forssk.) Chiov.	P	RARE	2
<i>P. stramineum</i> Peter	P	RARE	2
<i>Rhynchelytrum repens</i> (Willd.) C. E. Hubbard	P	RARE	2 11
<i>Rottboellia cochinchinensis</i> (Lour.)			
W.D. Clayton	A	RARE	2 3 9 15
<i>Sehima nervosum</i> (Rottler) Stapf	P	ABUNDANT	2 3 6
		RARE	7
<i>Setaria incrasata</i> (Hochst.) Hack.	A	COMMON	2 3
		RARE	12 15 16
<i>S. plicatilis</i> (Hochst.) Engl.	P	COMMON	15
<i>S. pumila</i> (Pior.) Roem. & Schult.	A	RARE	2 15
<i>S. sphacelata</i> (Schumach.) Moss	P	RARE	2
<i>S. verticillata</i> (L.) P. Beauv.	A	COMMON	4
		RARE	2 9 10 12 15
<i>Sorghum arundinaceum</i> (Desv.) Stapf	A	RARE	2
<i>S. purpureo-sericeum</i> (A. Rich.)			
Ascher & Schweinf.	A	RARE	15
<i>Sporobolus fimbriatus</i> (Trin.) Nees	P	ABUNDANT	12
		COMMON	5 8 14
		RARE	2 6 7 10 11 17
<i>S. helvolus</i> (Trin.) Th. Dur. & Schinz	P	RARE	15
<i>S. pellucidus</i> Hochst.	P	RARE	2 17
<i>S. spicatus</i> (Vahl) Kunth	P	RARE	2 15 17
<i>Tetrapogon cenchrifomis</i> (A. Rich.)			
W.D. Clayton	P	RARE	6 12 16
<i>T. tenellus</i> (Roxb.) Chiov.	A	COMMON	2 3 4
		RARE	5 10 11 13

<i>Themeda triandra</i> Forssk.	P	ABUNDANT	5a
		COMMON	7 11
		RARE	5b 6 8 13 14
<i>Trachypogon spicatus</i> (L. f.) Kuntze	P	RARE	5a 6 11
<i>Tragus berteronianus</i> Schult.	P	COMMON	2 3 4
		RARE	6 13 16 17
<i>Tricholaena teneriffae</i> (L. f.) Link.	P	ABUNDANT	1 2
		RARE	3
<i>Tripogon minimus</i> (A. Rich.) Steud.	P	RARE	2
<i>Urochloa panicoides</i> P. Beauv.	A	RARE	2 15

ICACINACEAE

<i>Pyrenacantha kaurabassana</i> Baill.	PC	RARE	5
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LABIATAE

<i>Hoslundia opposita</i> Vahl	S	RARE	5 7 9 10 13 14 16
<i>Leucas mollis</i> Baker	AH	COMMON	17
		RARE	12 15 16
<i>Ocimum basilicum</i> L.	AH	COMMON	2 8
		RARE	3 5b 11 13
<i>O. hadiense</i> Forssk.	S	RARE	1 2 3
<i>Orthosiphon parvifolius</i> Vatke	AH	RARE	5
<i>O. rubicundus</i> Benth.	AH	COMMON	2
		RARE	1 3 5 11 13
<i>Plectranthus barbatus</i> Andr.	S	RARE	5a 11 14
<i>P. caninus</i> Roth	AH	RARE	2
<i>P. sylvestris</i> Guerke	AH	RARE	5a 14

LEGUMINOSAE

<i>Acacia brevispica</i> Harms	S	ABUNDANT	3
		COMMON	4 14
		RARE	5 6 9 10 11 13
<i>A. drepanolobium</i> Sjostedt	T	ABUNDANT	12 16
		RARE	15 17
<i>A. hockii</i> De Wild.	S	COMMON	2
		RARE	1
<i>A. mellifera</i> (Vahl) Benth.	S	ABUNDANT	5b 10
		RARE	3 5 6 7 8 9 11 12 15
			16 17
<i>A. nilotica</i> (L.) Del.	T	COMMON	11
		RARE	7 13b 16
<i>A. senegal</i> (L.) Willd.	T	COMMON	5 6 7 14
		RARE	2 3 8 10 11 12 16
<i>A. tortilis</i> (Forssk.) Hayne	T	ABUNDANT	5 6 14
		COMMON	7 9 10
		RARE	3 11 12 13 17
<i>A. xanthophloea</i> Benth.		ABUNDANT	17
	T	RARE	15
<i>Albizia amara</i> (Roxb.) Boiv.			
ssp. <i>sericocephala</i> (Benth.) Brenan	T	RARE	3 5 6 7 8 10 11 13 15
<i>A. anthelmintica</i> Brongn.	S	COMMON	5 6 13

<i>Atysicarpus glumaceus</i> (Vahl) DC.	PH	RARE	5 6 8 9
<i>A. rugosus</i> (Willd.) DC.	PH	COMMON	
		RARE	5 6 8 11 16
<i>Cassia abbreviata</i> Oliv.	T	RARE	7 14
<i>C. absus</i> L.	AH	RARE	5 15
<i>C. mimosoides</i> L.	AH	RARE	9 16
<i>C. occidentalis</i> L.	S	RARE	2 3 9 17
<i>Clitoria ternatea</i> L.	PC	RARE	12 16
<i>Crotalaria goodiiiformis</i> Vatke	S	RARE	11
<i>C. incana</i> L.	AH	RARE	2 9
<i>C. laburnifolia</i> L.	AH	RARE	2 6
<i>C. polysperma</i> Kotschy	AH	RARE	2 5 9 10
<i>Dalbergia melanoxylon</i> Guill. & Perr.	T	COMMON	2
		RARE	3 4 5 11 14
<i>D. vacciniifolia</i> Vatke	S	RARE	2 3
<i>Dichrostachys cinerea</i> (L.) Wight & Arn.	T	COMMON	2
		RARE	1 5 8 11 16
<i>Dolichos sericeus</i> E. Mey.	PC	RARE	12
<i>Entada leptostachya</i> Harms	PC	RARE	2 3 4 5 14
<i>Indigofera colutea</i> (Burm.f.) Merrill	AH	COMMON	9
		RARE	5b 10 14
<i>I. lupatana</i> Bak.f.	AH	RARE	9
<i>I. malindiensis</i> Gillett	AH	RARE	9
<i>Leucaena latisiliqua</i> (L.) Gillis	S	RARE	2 8
<i>Macrotyloma axillare</i> (E. Mey.) Verdc.	PC	RARE	5 11 14
<i>Milletia leucantha</i> Vatke	T	RARE	5 8
<i>Neonotonia wightii</i> (Wight & Arn.) Lackey	PC	RARE	2 5b 13 14
<i>Neorautanenia mitis</i> (A.Rich.) Verdc.	PC	RARE	4 5
<i>Ormocarpum kirkii</i> S. Moore	S	COMMON	2 3 14
<i>O. trachycarpum</i> (Taub.) Harms	S	COMMON	2 3
		RARE	11
<i>Rhynchosia elegans</i> A. Rich.	PC	RARE	17
<i>R. minima</i> (L.) DC.	PC	RARE	2 5 10
<i>Sena bicausularis</i> (L.) Roxb.	S	RARE	15 17
<i>S. longiracemosa</i> (Vatke) Lock	S	RARE	5b
<i>S. singueana</i> (Del.) Lock	T	RARE	7 10 11 13b
<i>Sesbania keniensis</i> Gillett	S	RARE	17
<i>Tephrosia nana</i> Schweinf.	H A/P	COMMON	1 2 3 8 9
	H A/P	RARE	5 6 10 12
<i>T. pumila</i> (Lam.) Pers.	AH	RARE	9
<i>T. subtiflora</i> Bak.	H A/P	RARE	5 6 7 14
<i>Vigna membranacea</i> A.Rich.	C A/P	RARE	5 14
<i>V. unguiculata</i> (L.) Walp.	AH	RARE	2

LILIACEAE

<i>Anthericum subpetiolatum</i> Bak.	H A/P	RARE	5a 14
<i>A. venulosum</i> Bak.	H A/P	RARE	5a
<i>Asparagus africanus</i> Lam.	PC	RARE	5a 14
<i>A. falcatus</i> L.	PC	RARE	3 4
<i>A. flagellaris</i> (Kunth) Bak.	PC	RARE	2 5a 15
<i>Bulbine abyssinica</i> A. Rich.	AH	RARE	15
<i>Chlorophytum gallabatense</i> Bak.	AH	RARE	5 9 11 13b 14
<i>Gloriosa superba</i> L.	AH	RARE	5a
<i>Wurmbea tenius</i> Bak.	AH	RARE	1

LOBELIACEAE			
<i>Cyphia glandulifera</i> A. Rich.	PH	RARE	1
LORANTHACEAE			
<i>Plicosepalus sagittifolius</i> (Sprague) Danser		RARE	(epiphyte on <i>Acacia senegal</i>)
MALPIGHIACEAE			
<i>Caucanthus auriculatus</i> (Radlk.) Niedenzu	PC	RARE	9 11 13b 14
MALVACEAE			
<i>Abutilon figarianum</i> Webb.	AH	RARE	2
<i>A. fruticosum</i> Guill. & Perr.	S	RARE	17
<i>A. mauritianum</i> (Jacq.) Medic.	S	RARE	2 15
<i>Hibiscus aponeurus</i> Sprague & Hutch.	PH	COMMON	2 3
		RARE	5 8 11 13 14
<i>H. calyphyllus</i> Cav.	PH	RARE	5 10 15
<i>H. cannabinus</i> L.	AH	RARE	12 15 16
<i>H. palmatus</i> Forssk.	AH	RARE	2 3
<i>H. vitifolius</i> L.	AH	RARE	2 3 13
<i>Pavonia patens</i> (Andr.) Chiov.	S	COMMON	2 3 5
		RARE	4 11 14
<i>Sida ovata</i> Forssk.	A/PH	RARE	8
MELIACEAE			
<i>Melia azedarach</i> L.	T	RARE	5 9 (cultivated)
<i>M. volkensii</i> Gurke	T	RARE	5
<i>Trichilia emetica</i> Vahl	T	RARE	15 17
MENISPERMACEAE			
<i>Cissampelos mucronata</i> A. Rich.	PC	COMMON	15 17
		RARE	3 9 11
MORACEAE			
<i>Ficus glumosa</i> Del.	T	COMMON	15
		RARE	2
NYCTAGINACEAE			
<i>Commicarpus pedunculatus</i>	PH	COMMON	9 17
(A. Rich.) Cuf.		RARE	5b 11 14
<i>C. plumbagineus</i> (Cav.) Standl.	PH	COMMON	15 17
		RARE	2 3 5b 6 7 10
OCHNACEAE			
<i>Ochna ovata</i> F. Hoffm.	S	RARE	5
OLACACEAE			
<i>Ximenia americana</i> L.	T	RARE	15 17
PALMAE			
<i>Phoenix reclinata</i> Jacq.	S	COMMON	15
PASSIFLORACEAE			
<i>Adenia gummifera</i> (Harvey) Harms	PC	COMMON	15 17
		RARE	4 13

POLYGALACEAE			
<i>Polygala spheoptera</i> Fresen.	A/PH	RARE	11
POLYGONACEAE			
<i>Oxygonum sinuatum</i> (Meisn.) Dammer	AH	RARE	2 6 9 10 13b
PORTULACACEAE			
<i>Talinum portulacifolium</i> (Forssk.) Schweinf.	PH	RARE	2 3 5 6 7 9 10
RESEDACEAE			
<i>Caylusea abyssinica</i> (Fresen.) Fisch. & Mey.	AH	RARE	2 9
RHAMNACEAE			
<i>Helinus integrifolius</i> (Lam.) Kuntze	PC	RARE	2 5 9
<i>H. mystacinus</i> (Ait.) Steud.	PC	RARE	4
RUBIACEAE			
<i>Oldenlandia corymbosa</i> L.	AH	RARE	16
var. <i>caespitosa</i> (Benth.) Verdc.	A/PH	RARE	1 2 3 8 11 (roadsides & firebreaks)
<i>Pentania ouranogyne</i> S. Moore			
<i>Pentas parvifolia</i> Hiern	S	RARE	11 14
<i>Vangueria madagascariensis</i> Gmel.	S	RARE	15
RUTACEAE			
<i>Zanthoxylum chalybeum</i> Engl.	T	RARE	14
SALVADORACEAE			
<i>Azima tetracantha</i> Lam.	S	COMON	4
<i>Salvadora persica</i> L.	S	COMMON	4
		RARE	12 15
SAPINDACEAE			
<i>Allophyllus rubifolius</i> (A. Rich.) Engl.	S	RARE	2 17
<i>Cardiospermum corindum</i> L.	PC	COMMON	17
SCROPHULARIACEAE			
<i>Cynium tubulosum</i> (L. f.) Engl.	AH	RARE	12 16
SOLANACEAE			
<i>Lycopersicon esculentum</i> Mill.	AH	RARE	2 17 (cultivated)
<i>Solanum incanum</i> L.	S	RARE	2 3 5 7 8 9 10 11 13 16
<i>S. nigrum</i> L.	AH	RARE	2 17
<i>S. renschii</i> Vatke	S	RARE	4
<i>S. sessilistellatum</i> Bitter	S	RARE	15
<i>Withania somnifera</i> (L.) Dunal	AH	RARE	9 17
STERCULIACEAE			
<i>Dombeya kirkii</i> Mast.	T	RARE	4
<i>D. rotundifolia</i> (Hochst.) Planch.	T	RARE	2 3
<i>Hermannia uhligii</i> Engl.	S	COMMON	5 8
		RARE	2 6 9 10 11 13 16 17
<i>Melhania velutina</i> Forssk.	AH	RARE	2 5
<i>Sterculia africana</i> (Lour.) Fiori	T	COMMON	3 4
		RARE	2 11 14

TILIACEAE

<i>Corchorus trilocularis</i> L.	AH	RARE	8 11 16
<i>Grewia bicolor</i> Juss.	S	COMMON	5 6 7 14
		RARE	3 9 10 11 13
<i>G. densa</i> K. Schum.	S	COMMON	5 6 7 14
		RARE	3 10 11 13
<i>G. fallax</i> K. Schum.	T	COMMON	5 14
		RARE	3 6 7 8
<i>G. similis</i> K. Schum.	T	COMMON	5 15
		RARE	6 7 8
<i>G. tembensis</i> Fres.	T	COMMON	5 14
		RARE	6 7 8 9
<i>G. villosa</i> Willd.	S	COMMON	5 6 8 14
		RARE	2 7 9 10 12 13 16 17
<i>Triumfetta flavescens</i> A. Rich.	S	ABUNDANT	3
		COMMON	2
		RARE	1 8 10 17

TURNERACEAE

<i>Streptopetalum hildebrandtii</i> Urb.	PH	RARE	1
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UMBELLIFERAE

<i>Steganothaenia araliacea</i> Hochst.	T	COMMON	3 4
		RARE	2 5 16

VERBENACEAE

<i>Chascanum hildebrandtii</i> (Vatke) Gillett	PH	RARE	2
<i>Clerodendrum acerbianum</i> (Vis.) Benth. & Hook.f.	S	RARE	2
<i>C. myricoides</i> (Hochst.) Vatke	S	RARE	2 5 11 14
<i>Lantana camara</i> L.	S	RARE	5 15
<i>L. rhodesiensis</i> Moldenke	PH	RARE	5
<i>L. viburnoides</i> (Forssk.) Vahl	PH	RARE	5b
<i>Lippia javanica</i> (Burm.f.) Spreng	S	RARE	2 3 4 8
<i>L. kituiensis</i> Vatke	S	RARE	5 17
<i>Premna oligotricha</i> Bak.	S	COMMON	11 13 14
		RARE	5
<i>Priva curtisiae</i> Kobuski	PH	RARE	2 15

VITACEAE

<i>Cissus aphyllantha</i> Gilg.	PC	COMMON	3 4 5
<i>C. cornifolia</i> (Bak.) Planch.	PH	RARE	2 5 11 13 14
<i>C. quadrangularis</i> L.	PC	COMMON	4
<i>C. rotundifolia</i> (Forssk.) Vahl	PC	RARE	5
<i>Cyphostemma adenocaula</i> (A. Rich.) Wild & Drum.	PC	COMMON	5 14
		RARE	1
<i>C. serpens</i> (A. Rich.) Desc.	PC	COMMON	
		RARE	6 7 11

ZYGOPHYLLACEAE

<i>Tribulus terrestris</i> L.	AH	COMMON	15
		RARE	2

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